30 May 2014

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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Subsidiary Body for Scientific and Technological Advice
Fortieth session
Bonn, 4–15 June 2014

Item 11(c) of the provisional agenda
Methodological issues under the Convention
Emissions from fuel used for international aviation and maritime transport

Information relevant to emissions from fuel used for international aviation and maritime transport

Submissions from international organizations

1. The Subsidiary Body for Scientific and Technological Advice, at its thirty-ninth session, invited the secretariats of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to continue to report, at its future sessions, on relevant work in relation to addressing emissions from fuel used for international aviation and maritime transport.[1]

2. The secretariat has received submissions from ICAO and IMO containing information on emissions from fuel used for international aviation and maritime transport. In accordance with the procedure for miscellaneous documents, these submissions are attached and reproduced* in the language in which they were received and without formal editing.[2]

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[1] FCCC/SBSTA/2013/5, paragraph 94.

* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

[2] Also available at <http://unfccc.int/7482.php>.

FCCC/SBSTA/2014/MISC.5

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Paper no. 1: International Civil Aviation Organization

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The Fortieth Session of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA40)

(4 to 15 June 2014 – Bonn, Germany)

Agenda Item 11 (c)
Emissions from fuel used for international aviation and maritime transport

(Submission by the International Civil Aviation Organization (ICAO))

Executive Summary

Following the last triennial Assembly in October 2013, ICAO and Member States has been actively engaged in progressing on a comprehensive strategy to address CO_2 emissions from international aviation, with a view to achieving collective global aspirational goals for the sector's CO_2 emissions reduction. Key clusters of ICAO's work include the development and facilitation of mitigation measures, such as aircraft technology, operational improvements, sustainable alternative fuels, market-based measures (MBMs), as well as the implementation support for Member States' action plans to reduce CO_2 emissions from international aviation through assistance and capacity building .

The robust capacity building programme over the last triennium enabled the submission of action plans to reduce international aviation CO_2 emissions by Member States, representing over 80 per cent of global international air traffic. To provide further support in the development and refinement of their action plans. ICAO just held the first two seminars in Mexico and Peru in April 2014 and five more seminars in other regions are planned by early 2015. To facilitate access to financing for Member States' actions, ICAO has built partnerships with the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), as well as with the European Union (EU).

The development of a global MBM scheme for international aviation, as requested by the Assembly, needs significant efforts of the Organization, and the ICAO Council in February 2014 defined a clear process and roadmap to achieve this objective. The newly established Environment Advisory Group (EAG) has been making progress using the approach of a "Srawman" which started with a simple and basic proposal for a global MBM scheme with a view to generating the discussion on advantages and disadvantages of its design elements and allowing for the improvements of the Strawman. This iterative approach will ensure the full engagement of States and other stakeholders, taking into account inputs from different sources.

The results of the 38th Assembly are a testimony of ICAO and its Member States' collective resolve to develop concrete and meaningful proposals to reach an environmentally sustainable future for air transport. Cooperating closely with its Member States and the aviation industry, ICAO is ready and committed to supporting this journey.

Full text of Resolution A38-18 adopted by the ICAO Assembly is provided in the Appendix.

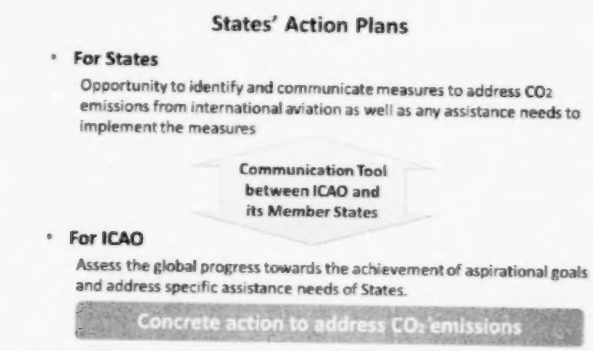
1. RECENT ICAO DEVELOPMENTS

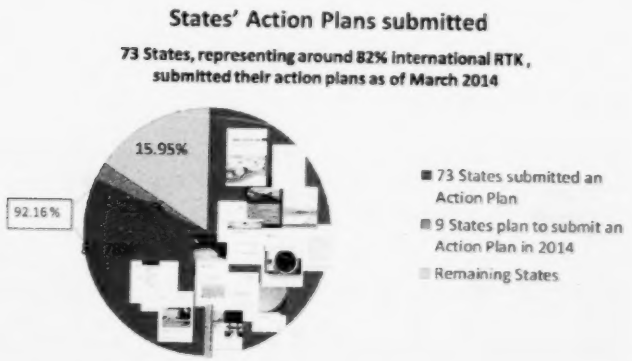
States' Action Plans

1.1 The 38th ICAO Assembly in October 2013 acknowledged the successful outcome of the Organization's initiatives with respect to the development and submission of States' action plans on CO_2 emissions reduction from international aviation, by Member States that represent over 80 per cent of global international air traffic. The Assembly encouraged Member States to submit more complete and robust data in their action plans to facilitate the compilation of global emissions data by ICAO. It also encouraged the partnerships among ICAO, States and other organizations, and emphasized the need for the Secretariat to provide further guidance and other technical assistance.

1.2 Since the Assembly, ICAO Doc 9988, *Guidance on the Development of States' Action Plans on CO_2 Emissions Reduction Activities*, was refined including the provision of guidance on stakeholders' involvement and organizational arrangements needed. Improvements were also made to simplify the methodologies to assess the emissions calculation and reporting. In order to provide capacity building to States' focal points in the development and refinement of their action plans, ICAO held the first two seminars in Mexico and Peru in April 2014 and five more seminars in other regions are planned by early 2015

1.3 Voluntary submission of additional or updated action plans to ICAO are expected by the end of June 2015, as requested by the Assembly.


States' Action Plans
For States
Opportunity to identify and communicate measures to address CO2 emissions from international aviation as well as any assistance needs to implement the measures
Communication Tool between ICAO and its Member States
For ICAO
Assess the global progress towards the achievement of aspirational goals and address specific assistance needs of States.
Concrete action to address CO2 emissions


States' Action Plans submitted
73 States, representing around 82% international RTK, submitted their action plans as of March 2014
15.95%
92.16%
73 States submitted an Action Plan
9 States plan to submit an Action Plan in 2014
Remaining States

State's Action Plans
ICAO Seminars 2014-2015
Poland, Spring 2015
Montreal, ICAO HQ 2015
Mexico City, Mexico 1 – 4 April 2014
Yaoundé, Cameroon 11–13 June 2014
Malaysia, October 2014
Lima, Peru 7 – 10 April 2014
Dubai, UAE February 2015
Kenya, Nairobi 16 – 18 June 2014

Assistance to States

1.4 As part of ICAO's efforts to provide further assistance to States and facilitate access to financing for the development and implementation of States' action plans, ICAO established partnerships with the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), as well as with the European Union (EU).

1.5 The ICAO's joint project with the GEF-UNDP includes identifying and facilitating the implementation of measures to reduce international aviation CO_2 emissions. One important element of this project is a practical case study, consisting of the implementation of a CO_2 reduction measure that can be replicated in other States. These endeavour to facilitate States in pledging part of their domestic grant allocations be dedicated to green aviation related projects.

1.6 The ICAO's joint project with the EU involves 14 States from the African and Caribbean regions. The estimated duration of the project is 42 months, with the overarching objective of contributing to international, regional and national efforts to address growing CO_2 emissions from international aviation.

1.7 Recognizing that year 2014 is the international year of Small Island Developing States (SIDS) and the importance of air transport to the sustainable development of SIDS, ICAO has included SIDS in both joint climate change assistance projects with GEF-UNDP and with EU. ICAO will provide information to the third SIDS conference in September 2014, in Apia, Samoa, to showcase the work being undertaken by ICAO on providing assistance to SIDS.

1.8 In addition to the GEF-UNDP and EU projects, further opportunities to build partnerships with other international organizations and regional development banks have been explored by the Secretariat to facilitate more access to financing Member States' action to reduce aviation emissions.

Sustainable Alternative Fuels for Aviation

1.9 The 38th ICAO Assembly highlighted the progress achieved in promoting and facilitating the development and deployment of sustainable alternative fuels for aviation, including information sharing on best practices among States and other stakeholders and the ongoing update of the ICAO Global Framework for Aviation Alternative Fuels (GFAAF) website, as well as the promotion of global initiatives.

1.10 The Assembly also requested to provide a global view of the future use of alternative jet fuels and of the associated range of potential emissions reductions. With a view to developing such a projection, a new Alternative Fuels Task Force (AFTF) was established under the ICAO's Committee on Aviation Environmental Protection (CAEP) in November 2013.

1.11 The AFTF consists of 70 experts from 22 States and organizations, and is working to develop a methodology for the assessment of full life-cycle CO_2 emissions, assess the future production of alternative jet fuel, and apply the life-cycle methodology to evaluate the associated emissions reductions in future.

1.12 In addition, ICAO has been working with the Sustainable Energy for All (SE4ALL) initiative with a view to building partnership in promoting linkages and synergies between the aviation industry and governments on sustainable alternative fuels.

ICAO Global Framework for Aviation Alternative Fuels (GFAAF) website (http://www.icao.int/environmental-protection/GFAAF/Pages/default.aspx)

Global Market-based Measure (MBM)

1.13 The agreement of the 38th Assembly on the development of a global MBM scheme for international aviation, reflects the strong support of Member States for a global solution to the international aviation industry. Significant efforts need to be undertaken as the Organization moves forward in developing a recommendation for a global MBM scheme capable of being implemented from 2020, for decision by the 39th Session of the Assembly in 2016.

1.14 In this regard, in February 2014, the ICAO Council agreed on a clear process and roadmap, with expected milestones and necessary governance structure, including the establishment of the

Environment Advisory Group (EAG). The EAG has been working on a global MBM scheme under the direction of the Council, using the approach of a "Strawman" which started with a simple and basic proposal for a global MBM scheme with a view to generating the discussion on advantages and disadvantages of its design elements and allowing for the improvements of the Strawman. This iterative approach will also ensure the full engagement of States and other stakeholders, taking into account inputs from different sources.

1.15 To support work on some design elements of the Strawman, a new Global Market Based Measure Technical Task Force (GMTF) was established under CAEP to undertake technical work related to monitoring, reporting and verification (MRV) system, and the criteria for emissions units to be eligible for the global MBM scheme. In addition, the EAG's discussion on the Strawman identified the need to undertake a series of quantitative impact analyses which are expected to be undertaken during the 2014 summer period in order to facilitate more in-depth discussion and subsequent decision-making.

ICAO Green Technology Seminar

1.16 ICAO is organizing a seminar with exhibition entitled "Fuelling Aviation with Green Technology" from 9 to10 September 2014 in Montreal[1]. This seminar provides an opportunity to gain knowledge and share information on the latest and most innovative technologies to reduce aviation CO_2 emissions. The event will address topics such as next generation aircraft, airplane recycling, green operations, eco-airports, renewable energy for aviation, and financing.

1.17 Key driver of this Seminar is to create a platform in ICAO to bring and discuss novelty topics that would not be considered internationally, with a view to raising awareness, facilitating information sharing, and further discussing possible next steps by the Organization on these innovative topics.

2. UNFCCC – CLIMATE FINANCE

2.1 One of the areas where international aviation was considered under the UNFCCC process is the issue of long-term climate finance. The UNFCCC conferences adopted a series of decisions which included the work programme on long-term climate finance, to further analyse options for the mobilization of USD 100 billion per year by 2020 from a wide variety of potential sources.

2.2 Some Parties expressed concern with the proposals to use international aviation as a potential source for mobilizing such revenue. Such proposals include the report of the World Bank (WB) / International Monetary Fund (IMF) under the G20 process in 2011, which explored global carbon charges of USD 25 per tonne of CO_2 on international transport, which the report suggested could raise USD 12 billion per year by 2020 from international aviation.

2.3 It should be highlighted that the achievement of ICAO's global aspirational goals for the international aviation sector requires adequate financial resources within the sector itself, enabling it to effectively respond to the global climate change challenge. It is of utmost importance that the development of a global MBM scheme for international aviation be treated as one element of a basket of mitigation measures to achieve the global aspirational goals, and not in isolation.

2.4 In this regard, the 38th Assembly urged that ICAO and its Member States express a clear concern, through the UNFCCC process, on the use of international aviation as a potential source for

[1] http://www.icao.int/Meetings/EnvironmentalWorkshops/Pages/GreenTechnology.aspx

the mobilization of revenue for climate finance to the other sectors, in order to ensure that international aviation would not be targeted as a source of such revenue in a disproportionate manner.

2.5 The Assembly also requested Member States to communicate and coordinate with their delegations of Parties to the UNFCCC process regarding developments on international aviation and climate change under ICAO.

3. UN CLIMATE SUMMIT

3.1 As part of global efforts to mobilize action and ambition on climate change, UN Secretary-General Ban Ki-moon has invited Heads of State and Governments along with business, finance, civil society and local leaders to the UN Climate Summit on 23 September 2014.

3.2 ICAO fully recognizes the importance of the UN Climate Summit, which will take place one year before States aim to conclude a global climate agreement at the UNFCCC conference in December 2015 in Paris.

3.3 ICAO is involved in the preparation of the Summit on two fronts. The first is its cooperation with UNEP and the UNFCCC in helping the UN Secretary General to "green" the UN Summit and in organizing a climate neutral event. The ICAO Carbon Emissions Calculator can be used to estimate the air travel related component of the carbon emissions generated by the Summit and its delegates.

3.4 In addition, during the Summit, ICAO is planning to showcase concrete initiatives from States in the field of sustainable energy and alternative fuels, such as using sustainable biojet fuels on flights to New York, and showcasing the ongoing work in assisting States with the support of the aviation industry and in partnerships with the GEF-UNDP and EU.

4. CONCLUSIONS

4.1 With the increasing engagement of Members States, together in close cooperation with the aviation industry and other UN bodies and international organizations, ICAO has been working actively towards developing global solutions to address GHG emissions from international aviation.

4.2 ICAO Assembly Resolution A38-18 is a clear demonstration of the willingness of ICAO and its Member States to exercise continuous leadership on environmental issues related to international aviation, and provides concrete steps as ICAO moves forward in demonstrating how it intends to achieve the ultimate vision of sustainable international aviation.

Note by the International Maritime Organization to the fortieth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 40)
Bonn, Germany, 4 to 15 June 2014

Agenda item 11(c)
Emissions from fuel used for international aviation and maritime transport

UPDATE ON IMO'S WORK TO ADDRESS EMISSIONS FROM FUEL USED FOR INTERNATIONAL SHIPPING

SUMMARY

IMO's Marine Environment Protection Committee has been considering as an integral part of its agenda, actions to address greenhouse gas (GHG) emission from ships engaged in international trade. It met for its 66th session from 31 March to 4 April 2014 (MEPC 66), at IMO Headquarters in London and had the participation from 105 Member States, 3 United Nations bodies, 7 intergovernmental organizations and 50 non-governmental organizations.

Following the entry into force on 1 January 2013 of the new chapter 4 of MARPOL Annex VI which includes requirements mandating the Energy Efficiency Design Index (EEDI) for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships, MEPC 66 considered further energy efficiency measures for ships.

MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on "Further technical and operational measures for enhancing energy efficiency of international shipping" to consider the development of a data collection system for ships, including identification of the core elements of such a system.

IMO is also focusing its efforts on technical co-operation and capacity building to ensure smooth and effective implementation and enforcement of the new regulations worldwide. In this regard, MEPC 66 discussed the implementation of resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*.

Introduction

1 International shipping plays a vital role in the facilitation of world trade as the most cost-effective and energy-efficient mode of mass transport, making a significant contribution to global prosperity in both developing and developed countries.

2 IMO was established by governments as a specialized agency under the United Nations to provide machinery for intergovernmental cooperation in the field of regulation of ships engaged in international trade. IMO is responsible for the global regulation of all facets pertaining to international shipping and has a key role in ensuring that lives at sea are not put at risk including security of shipping and that the environment is not polluted by ships' operations – as summed up in IMO's mission statement: **Safe, Secure and Efficient Shipping on Clean Oceans**.

3 This document provides an update to previous submissions by IMO to SBSTA including: FCCC/SBSTA/2013/MISC.20 and FCCC/SBSTA/2013/MISC.15.

Work on control of GHG emissions from international shipping

4 Measures to improve energy efficiency of international shipping were adopted by Parties to Annex VI of the Convention on the Prevention of Pollution from Ships (MARPOL) at MEPC 62 in July 2011 and entered into force on 1 January 2013. The *Regulations for energy efficiency of ships*, apply to internationally trading ships of 400 gross tonnage and above, and make mandatory:

.1 the Energy Efficiency Design Index (EEDI) for new ships; and

.2 the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

5 The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. So long as the required energy-efficiency level is attained, ship designers and builders are free to use the most cost-efficient solutions for the ship to comply with the regulations.

6 All ships of 400 gross tonnage and above engaged in international trade are required to implement and maintain a SEEMP which establishes a mechanism for operators to improve the energy efficiency of ships. This should be achieved by monitoring the energy efficiency performance of a ship's transportation work and at regular intervals considering new technologies and practices to improve energy efficiency.

7 With regard to mandatory energy efficiency regulations for ships, MEPC 66 took the following actions:

.1 adopted amendments to MARPOL Annex VI concerning the extension of the scope of application of the Energy Efficiency Design Index (EEDI) to LNG carriers, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships, ro-ro passenger ships and cruise passenger ships with non-conventional propulsion;

.2 adopted the *2014 Guidelines on the method of calculation of the Attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.245(66)); and

.3 agreed to the establishment of an EEDI database in order to support the review of the implementation of the EEDI provisions as detailed in regulation 21.6 of MARPOL Annex VI.

Further technical and operational measures to enhance the energy efficiency of ships

8 MEPC 65, in May 2013, considered the importance of enhancing energy efficiency and reducing fuel consumption with subsequent reductions of CO_2 emissions and other pollutants emitted to air and considered the use of a phased approach to implementation, with the focus of its initial work being on data collection.

9 MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on "Further technical and operational measures for enhancing energy efficiency of international shipping" to consider the development of a data collection system for ships, including identification of the core elements of such a system.

10 In discussing the possible scope of a data collection system the Working Group, inter alia, noted the view that a specific gross tonnage threshold for all ship types would be most appropriate with the following additional views that the scope should:

.1 be in line with the scope of the EEDI regulations, i.e. include all types of ships of 400 gross tonnage and above, with some delegations expressing the view that the administrative burden was not considered much different for ships of all sizes; and

.2 include ships of 5,000 gross tonnage and above as this is expected to encompass approximately 90% of the total energy consumption by international shipping but not present a disproportionate administrative burden on smaller ships.

11 The Working Group considered that a data collection system could include data elements as follows:

.1 identity of the ship (name, IMO number and flag State Administration);

.2 the shipowner and operator (name and address and principal place of business);

.3 technical characteristics of the ship including, for example, DWT, engine power, reference/design speed, EEDI, etc.;

.4 total annual fuel consumption per fuel type; and

.5 total annual transport work (tonne-miles) or transport work proxy, (e.g. distance or service hours).

12 MEPC 66, noting that further work should be undertaken intersessionally, agreed to establish a Correspondence Group and instructed it to consider the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system. The correspondence group will report to MEPC 67 in October 2014.

Update of the GHG emissions estimate for international shipping

13 MEPC 65 approved the Terms of Reference and agreed to initiate a study for an updated GHG emissions' estimate for international shipping. The new study will focus on updating key figures in the current (second) IMO GHG Study (2009), which estimated that international shipping emitted 870 million tonnes, or about 2.7%, of the global man-made emissions of CO_2 in 2007.

14 The update of the study is considered necessary, in general, to provide a better foundation for future work by IMO to address GHG emissions from international shipping. Sea transport is fuel-efficient and without updated figures it will be difficult to provide a meaningful baseline to illustrate the steadily on-going improvement in fuel efficiency due to improved hull design, more effective diesel engines and propulsion systems and more effective utilization of individual ships

resulting from the introduction of mandatory technical and operational measures, including other operational measures employed by ships as a consequence of the economic downturn.

15 There are three main tasks to the study: Recognizing that CO_2 is the most significant GHG emitted by ships, the first task of the study is an update of a CO_2 emission inventory from international shipping. A second task will constitute emission inventories from international shipping of GHGs (other than CO_2) considered under the UNFCCC process (CH_4, N_2O, HFCs, PFCs, SF_6) and other relevant substances (NOx, NMVOC, CO, PM, SOx). The third task is the modelling of future emission scenarios for all six GHGs and other relevant substances. These estimates represent a business as usual case, which takes into account the effects of MARPOL Annex VI requirements, as amended, e.g. inclusion of energy efficiency regulations and changes to the provisions for sulphur content of fuel oil.

16 MEPC 66 noted progress had been made on the update study and that the report of the third IMO GHG study 2014 is expected to be completed at MEPC 67 in October 2014.

Technical co-operation and transfer of technology

17 Regulation 23 of chapter 4 of MARPOL Annex VI on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships* requires Administrations, in co-operation with the Organization and other international bodies, to promote and provide, as appropriate, support directly or through IMO to Member States, especially developing States that request technical assistance. It also requires the Administration of a Party to MARPOL Annex VI to co-operate actively with other Parties, subject to its national laws, regulations and policies, to promote the development and transfer of technology and exchange of information to States which request technical assistance, particularly developing States.

18 Linked to the implementation of energy efficiency measures, MEPC 65 adopted an MEPC resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*, which, among other things, requests the IMO, through its various programmes, to provide technical assistance to Member States to enable cooperation in the transfer of energy efficient technologies to developing countries in particular; and further assist in the sourcing of funding for capacity building and support to States, in particular developing States, which have requested technology transfer.

19 MEPC 66 discussed the implementation of resolution MEPC.229(65) and established, in accordance to the resolution, the Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT). The AHEWG-TT agreed on the methodology for conducting its work, as well as a work plan which was endorsed by the Committee.

20 This work plan envisages: assessing the potential implications and impacts of the implementation of the energy efficiency regulations in chapter 4 of MARPOL Annex VI, in particular, on developing States, as a means to identify their technology transfer and financial needs; identifying and creating an inventory of energy efficiency technologies for ships; identifying barriers to transfer of technology, in particular to developing States, including associated costs, and possible sources of funding; and making recommendations, including the development of a model agreement enabling the transfer of financial and technological resources and capacity building between Parties, for the implementation of the energy efficiency regulations.

21 MEPC 66 agreed that a second meeting of the AHEWG-TT be held prior to MEPC 67 (scheduled to take place from 9 to 10 October 2014 at IMO Headquarters) in order for the Group to provide a progress report to the Committee at that session. The meeting will discuss the specific tasks under the AHEWG-TT work plan (document MEPC 66/WP.8).

Technical cooperation activities

22 MEPC 66 noted the information provided by the Secretariat (document MEPC 66/INF.24) informing the Committee of the technical cooperation activities that the Secretariat has undertaken, as well as planned future activities in relation to the implementation of MARPOL Annex VI, in particular chapter 4 thereof.

23 Under the 2014 to 2015 Integrated Technical Co-operation Programme (ITCP) of IMO, several national and regional capacity building activities are currently planned, in order to sustain the level of technical cooperation interventions in various regions for the effective implementation and enforcement of energy efficiency measures for ships. In this context, four regional workshops to raise awareness with regard to improving energy efficiency and the control of GHG emissions from ships are scheduled to take place in the biennium.

GEF-UNDP-IMO Project: Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency

24 MEPC 66 noted that IMO, through the UNDP, submitted a Project Identification Form (PIF) to the Global Environment Facility (GEF) for funding a medium-size project entitled "Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency" to assist the developing countries in the implementation of new energy efficiency measures adopted by IMO.

25 The PIF has received the GEF endorsement for funding of $2 million. This two-year global project builds on IMO's experience in delivering the project on capacity building in East Asia to address GHG emissions.

26 The proposed project, while focusing on legal, policy and institutional reforms (LPIR) and related tools development, will also help to enhance the technical knowledge and capacity for implementation of the new regulatory measures related to ships energy efficiency. Moreover, the project will facilitate creation and exchange of knowledge in developing countries on energy efficient shipping practices and opportunities, and provide a platform for sharing innovation and R&D, catalyse demonstrations of selected feasible energy efficiency measures and technologies by the private sector.

27 With the global tools developed and partnerships created by the project and the funding support by the project, pilot beneficiary countries, selected based on their level of interest and commitment to undertake a fast-track approach, are expected to initiate their legal, policy and institutional reforms and necessary capacity-building efforts – leading to creation of successful models and centres of excellences that can be replicated in other countries around the world.

28 The principal components of the project include: 1) legal, policy and institutional reforms for GHG reductions through improved energy efficiency within maritime transport sector in developing countries; 2) maritime sector energy efficiency related capacity building, awareness raising, knowledge creation and dissemination and; 3) public-private partnerships to catalyse maritime sector energy efficiency innovation and R&D.

29 The IMO Secretariat is currently preparing a detailed project implementation document (ProDoc) for which the GEF has already approved $100,000 as Project Preparation Grant (PPG). The PPG will allow IMO Secretariat to have detailed discussions with the pilot beneficiary countries as well as with other potential partners, including the private sector, before finalizing the ProDoc. Once the ProDoc is completed and approved by the GEF CEO, the implementation of the project activities can begin approximately by mid-2014.

Summary

30 Although international maritime transport is the most energy efficient mode of mass transport and only a modest contributor to worldwide CO_2 emissions (estimated as 2.7% in 2007), a global approach for further improvements in energy efficiency and emission reduction is considered necessary as sea transport is predicted to grow significantly in line with expected future growth in world trade.

31 IMO has developed and adopted a framework of technical and operational measures that now serves as mandatory performance standards for increased energy efficiency in international shipping. The framework builds on IMO's enforcement and control provisions (flag and port State controls) and includes also ship management aspects such as monitoring, verification and reporting, as well as guidelines for effective implementation.

32 IMO, as the global regulator of international shipping, will continue its endeavours to reduce environmental impacts from international maritime transport, a vital industry to world trade and sustainable development, and keep relevant bodies of the UNFCCC informed of its progress.

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3 June 2014

English only

UUNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

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(4 to 15 June 2014 – Bonn, Germany)

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(Submission by the International Civil Aviation Organization (ICAO))

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Following the last triennial Assembly in October 2013, ICAO and Member States has been actively engaged in progressing on a comprehensive strategy to address CO_2 emissions from international aviation, with a view to achieving collective global aspirational goals for the sector's CO_2 emissions reduction. Key clusters of ICAO's work include the development and facilitation of mitigation measures, such as aircraft technology, operational improvements, sustainable alternative fuels, market-based measures (MBMs), as well as the implementation support for Member States' action plans to reduce CO_2 emissions from international aviation through assistance and capacity building .

The robust capacity building programme over the last triennium enabled the submission of action plans to reduce international aviation CO_2 emissions by Member States, representing over 80 per cent of global international air traffic. To provide further support in the development and refinement of their action plans, ICAO just held the first two seminars in Mexico and Peru in April 2014 and five more seminars in other regions are planned by early 2015. To facilitate access to financing for Member States' actions, ICAO has built partnerships with the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), as well as with the European Union (EU).

The development of a global MBM scheme for international aviation, as requested by the Assembly, needs significant efforts of the Organization, and the ICAO Council in February 2014 defined a clear process and roadmap to achieve this objective. The newly established Environment Advisory Group (EAG) has been making progress using the approach of a "Srawman" which started with a simple and basic proposal for a global MBM scheme with a view to generating the discussion on advantages and disadvantages of its design elements and allowing for the improvements of the Strawman. This iterative approach will ensure the full engagement of States and other stakeholders, taking into account inputs from different sources.

The results of the 38th Assembly are a testimony of ICAO and its Member States' collective resolve to develop concrete and meaningful proposals to reach an environmentally sustainable future for air transport. Cooperating closely with its Member States and the aviation industry, ICAO is ready and committed to supporting this journey.

Full text of Resolution A38-18 adopted by the ICAO Assembly is provided in the Appendix.

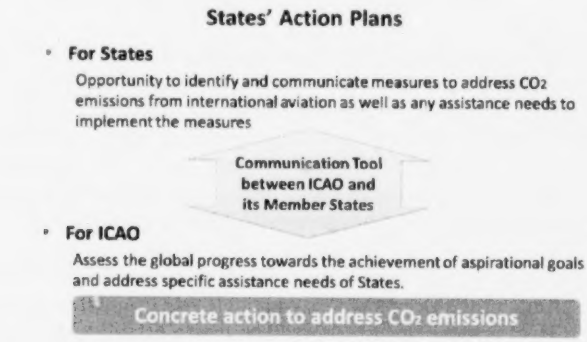
1. RECENT ICAO DEVELOPMENTS

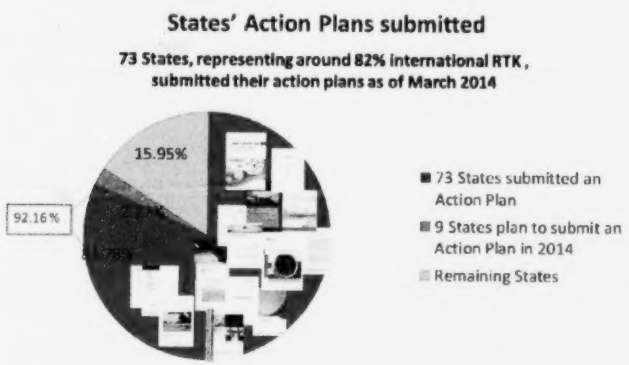
States' Action Plans

1.1 The 38th ICAO Assembly in October 2013 acknowledged the successful outcome of the Organization's initiatives with respect to the development and submission of States' action plans on CO_2 emissions reduction from international aviation, by Member States that represent over 80 per cent of global international air traffic. The Assembly encouraged Member States to submit more complete and robust data in their action plans to facilitate the compilation of global emissions data by ICAO. It also encouraged the partnerships among ICAO, States and other organizations, and emphasized the need for the Secretariat to provide further guidance and other technical assistance.

1.2 Since the Assembly, ICAO Doc 9988, *Guidance on the Development of States' Action Plans on CO_2 Emissions Reduction Activities*, was refined including the provision of guidance on stakeholders' involvement and organizational arrangements needed. Improvements were also made to simplify the methodologies to assess the emissions calculation and reporting. In order to provide capacity building to States' focal points in the development and refinement of their action plans, ICAO held the first two seminars in Mexico and Peru in April 2014 and five more seminars in other regions are planned by early 2015

1.3 Voluntary submission of additional or updated action plans to ICAO are expected by the end of June 2015, as requested by the Assembly.


States' Action Plans
For States
Opportunity to identify and communicate measures to address CO2 emissions from international aviation as well as any assistance needs to implement the measures
Communication Tool between ICAO and its Member States
For ICAO
Assess the global progress towards the achievement of aspirational goals and address specific assistance needs of States.
Concrete action to address CO2 emissions


States' Action Plans submitted
73 States, representing around 82% international RTK, submitted their action plans as of March 2014
15.95%
92.16%
73 States submitted an Action Plan
9 States plan to submit an Action Plan in 2014
Remaining States

Assistance to States

1.4 As part of ICAO's efforts to provide further assistance to States and facilitate access to financing for the development and implementation of States' action plans, ICAO established partnerships with the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), as well as with the European Union (EU).

1.5 The ICAO's joint project with the GEF-UNDP includes identifying and facilitating the implementation of measures to reduce international aviation CO_2 emissions. One important element of this project is a practical case study, consisting of the implementation of a CO_2 reduction measure that can be replicated in other States. These endeavour to facilitate States in pledging part of their domestic grant allocations be dedicated to green aviation related projects.

1.6 The ICAO's joint project with the EU involves 14 States from the African and Caribbean regions. The estimated duration of the project is 42 months, with the overarching objective of contributing to international, regional and national efforts to address growing CO_2 emissions from international aviation.

1.7 Recognizing that year 2014 is the international year of Small Island Developing States (SIDS) and the importance of air transport to the sustainable development of SIDS, ICAO has included SIDS in both joint climate change assistance projects with GEF-UNDP and with EU. ICAO will provide information to the third SIDS conference in September 2014, in Apia, Samoa, to showcase the work being undertaken by ICAO on providing assistance to SIDS.

1.8 In addition to the GEF-UNDP and EU projects, further opportunities to build partnerships with other international organizations and regional development banks have been explored by the Secretariat to facilitate more access to financing Member States' action to reduce aviation emissions.

Sustainable Alternative Fuels for Aviation

1.9 The 38th ICAO Assembly highlighted the progress achieved in promoting and facilitating the development and deployment of sustainable alternative fuels for aviation, including information sharing on best practices among States and other stakeholders and the ongoing update of the ICAO Global Framework for Aviation Alternative Fuels (GFAAF) website, as well as the promotion of global initiatives.

1.10 The Assembly also requested to provide a global view of the future use of alternative jet fuels and of the associated range of potential emissions reductions. With a view to developing such a projection, a new Alternative Fuels Task Force (AFTF) was established under the ICAO's Committee on Aviation Environmental Protection (CAEP) in November 2013.

1.11 The AFTF consists of 70 experts from 22 States and organizations, and is working to develop a methodology for the assessment of full life-cycle CO_2 emissions, assess the future production of alternative jet fuel, and apply the life-cycle methodology to evaluate the associated emissions reductions in future.

1.12 In addition, ICAO has been working with the Sustainable Energy for All (SE4ALL) initiative with a view to building partnership in promoting linkages and synergies between the aviation industry and governments on sustainable alternative fuels.

ICAO Global Framework for Aviation Alternative Fuels (GFAAF) website (http://www.icao.int/environmental-protection/GFAAF/Pages/default.aspx)

Global Market-based Measure (MBM)

1.13 The agreement of the 38th Assembly on the development of a global MBM scheme for international aviation, reflects the strong support of Member States for a global solution to the international aviation industry. Significant efforts need to be undertaken as the Organization moves forward in developing a recommendation for a global MBM scheme capable of being implemented from 2020, for decision by the 39th Session of the Assembly in 2016.

1.14 In this regard, in February 2014, the ICAO Council agreed on a clear process and roadmap, with expected milestones and necessary governance structure, including the establishment of the

Environment Advisory Group (EAG). The EAG has been working on a global MBM scheme under the direction of the Council, using the approach of a "Strawman" which started with a simple and basic proposal for a global MBM scheme with a view to generating the discussion on advantages and disadvantages of its design elements and allowing for the improvements of the Strawman. This iterative approach will also ensure the full engagement of States and other stakeholders, taking into account inputs from different sources.

1.15 To support work on some design elements of the Strawman, a new Global Market Based Measure Technical Task Force (GMTF) was established under CAEP to undertake technical work related to monitoring, reporting and verification (MRV) system, and the criteria for emissions units to be eligible for the global MBM scheme. In addition, the EAG's discussion on the Strawman identified the need to undertake a series of quantitative impact analyses which are expected to be undertaken during the 2014 summer period in order to facilitate more in-depth discussion and subsequent decision-making.

ICAO Green Technology Seminar

1.16 ICAO is organizing a seminar with exhibition entitled "Fuelling Aviation with Green Technology" from 9 to10 September 2014 in Montreal[1]. This seminar provides an opportunity to gain knowledge and share information on the latest and most innovative technologies to reduce aviation CO_2 emissions. The event will address topics such as next generation aircraft, airplane recycling, green operations, eco-airports, renewable energy for aviation, and financing.

1.17 Key driver of this Seminar is to create a platform in ICAO to bring and discuss novelty topics that would not be considered internationally, with a view to raising awareness, facilitating information sharing, and further discussing possible next steps by the Organization on these innovative topics.

2. UNFCCC – CLIMATE FINANCE

2.1 One of the areas where international aviation was considered under the UNFCCC process is the issue of long-term climate finance. The UNFCCC conferences adopted a series of decisions which included the work programme on long-term climate finance, to further analyse options for the mobilization of USD 100 billion per year by 2020 from a wide variety of potential sources.

2.2 Some Parties expressed concern with the proposals to use international aviation as a potential source for mobilizing such revenue. Such proposals include the report of the World Bank (WB) / International Monetary Fund (IMF) under the G20 process in 2011, which explored global carbon charges of USD 25 per tonne of CO_2 on international transport, which the report suggested could raise USD 12 billion per year by 2020 from international aviation.

2.3 It should be highlighted that the achievement of ICAO's global aspirational goals for the international aviation sector requires adequate financial resources within the sector itself, enabling it to effectively respond to the global climate change challenge. It is of utmost importance that the development of a global MBM scheme for international aviation be treated as one element of a basket of mitigation measures to achieve the global aspirational goals, and not in isolation.

2.4 In this regard, the 38th Assembly urged that ICAO and its Member States express a clear concern, through the UNFCCC process, on the use of international aviation as a potential source for

[1] http://www.icao.int/Meetings/EnvironmentalWorkshops/Pages/GreenTechnology.aspx

the mobilization of revenue for climate finance to the other sectors, in order to ensure that international aviation would not be targeted as a source of such revenue in a disproportionate manner.

2.5 The Assembly also requested Member States to communicate and coordinate with their delegations of Parties to the UNFCCC process regarding developments on international aviation and climate change under ICAO.

3. UN CLIMATE SUMMIT

3.1 As part of global efforts to mobilize action and ambition on climate change, UN Secretary-General Ban Ki-moon has invited Heads of State and Governments along with business, finance, civil society and local leaders to the UN Climate Summit on 23 September 2014.

3.2 ICAO fully recognizes the importance of the UN Climate Summit, which will take place one year before States aim to conclude a global climate agreement at the UNFCCC conference in December 2015 in Paris.

3.3 ICAO is involved in the preparation of the Summit on two fronts. The first is its cooperation with UNEP and the UNFCCC in helping the UN Secretary General to "green" the UN Summit and in organizing a climate neutral event. The ICAO Carbon Emissions Calculator can be used to estimate the air travel related component of the carbon emissions generated by the Summit and its delegates.

3.4 In addition, during the Summit, ICAO is planning to showcase concrete initiatives from States in the field of sustainable energy and alternative fuels, such as using sustainable biojet fuels on flights to New York, and showcasing the ongoing work in assisting States with the support of the aviation industry and in partnerships with the GEF-UNDP and EU.

4. CONCLUSIONS

4.1 With the increasing engagement of Members States, together in close cooperation with the aviation industry and other UN bodies and international organizations, ICAO has been working actively towards developing global solutions to address GHG emissions from international aviation.

4.2 ICAO Assembly Resolution A38-18 is a clear demonstration of the willingness of ICAO and its Member States to exercise continuous leadership on environmental issues related to international aviation, and provides concrete steps as ICAO moves forward in demonstrating how it intends to achieve the ultimate vision of sustainable international aviation.

APPENDIX

ICAO Assembly Resolution A38-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

Whereas ICAO and its member States recognize the critical importance of providing continuous leadership to international civil aviation in limiting or reducing its emissions that contribute to global climate change;

Reemphasizing the vital role which international aviation plays in global economic and social development and the need to ensure that international aviation continues to develop in a sustainable manner;

Whereas the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC) is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system;

Whereas the Kyoto Protocol, which was adopted by the Conference of the Parties to the UNFCCC in December 1997 and entered into force on 16 February 2005, calls for developed countries (Annex I Parties) to pursue limitation or reduction of greenhouse gases from "aviation bunker fuels" (international aviation) working through ICAO (Article 2.2);

Acknowledging that international aviation emissions, currently accounting for less than 2 per cent of total global CO_2 emissions, are projected to grow as a result of the continued development of the sector;

Whereas a comprehensive assessment of aviation's impact on the atmosphere is contained in the special report on *Aviation and the Global Atmosphere*, published in 1999, which was prepared at ICAO's request by the Intergovernmental Panel on Climate Change (IPCC) in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer;

Whereas the IPCC special report recognized that the effects of some types of aircraft emissions are well understood, it revealed that the effects of others are not, and identified a number of key areas of scientific uncertainty that limit the ability to project aviation's full impacts on climate and ozone;

Whereas ICAO requested that the IPCC include an update of the main findings of the special report in its Fourth Assessment Report, published in 2007 and its Fifth Assessment Report to be published in 2014;

Noting the scientific view that the increase in global average temperature above pre-industrial levels ought not to exceed 2°C;

Acknowledging the principles and provisions on common but differentiated responsibilities and respective capabilities, and with developed countries taking the lead under the UNFCCC and the Kyoto Protocol;

Also acknowledging the principles of non-discrimination and equal and fair opportunities to develop international aviation set forth in the Chicago Convention;

Recognizing that this Resolution does not set a precedent for or prejudge the outcome of negotiations under the UNFCCC and its Kyoto Protocol nor represent the position of the Parties to the UNFCCC and its Kyoto Protocol;

Recognizing that the aspirational goal of 2 per cent annual fuel efficiency improvement is unlikely to deliver the level of reduction necessary to stabilize and then reduce aviation's absolute emissions contribution to climate change, and that goals of more ambition will need to be considered to deliver a sustainable path for aviation;

Noting that, to promote sustainable growth of aviation, a comprehensive approach, consisting of work on technology and standards, and on operational and market-based measures to reduce emissions is necessary;

Acknowledging the significant technological progress made in the aviation sector, with aircraft produced today being about 80 per cent more fuel efficient per passenger kilometre than in the 1960's;

Welcoming the agreement by the Committee on Aviation Environmental Protection (CAEP) of certification requirements for a global CO_2 Standard for aircraft;

Recognizing that air traffic management (ATM) measures under the ICAO's Global Air Navigation Plan contribute to enhanced operational efficiency and the reduction of aircraft CO_2 emissions;

Welcoming the adoption of the Aviation System Block Upgrades (ASBUs) strategy at the ICAO Twelfth Air Navigation Conference in November 2012;

Recalling that Assembly Resolution A37-19 requested the Council, with the support of member States, to undertake work to develop a framework for market-based measures (MBMs) in international aviation, including further elaboration of the guiding principles listed in the Annex to A37-19, for consideration by the 38th Session of the ICAO Assembly;

Recognizing the importance of avoiding a multiplicity of approaches for the design and implementation of MBM framework and MBM schemes;

Recalling that Assembly Resolution A37-19 requested the Council to explore the feasibility of a global MBM scheme to address emissions from international aviation;

Noting the decision of the Council on 9 November 2012, which recognized that the results of the qualitative and quantitative analysis of the three options for a global MBM scheme evaluated by the Secretariat with the support of the Experts on MBMs demonstrated that all three options were technically feasible and had the capacity to contribute to achieving ICAO's environmental goals, and that the Council agreed that further quantitative analysis of the three options needed to be undertaken to develop more robust and concrete conclusions;

Recognizing the potential desirability of a global MBM scheme in terms of providing an additional means of promoting achievement of the aspirational global goal referred to in paragraph 7;

Noting the support of the aviation industry for a single global carbon offsetting scheme, as opposed to a patchwork of State and regional MBMs, as a cost effective measure to complement a broader package of measures including technology, operations and infrastructure measures;

Noting that the Conference on Aviation and Alternative Fuels in November 2009 (CAAF/09) endorsed the use of sustainable alternative fuels for aviation, particularly the use of drop-in fuels in the short to mid-term, as an important means of reducing aviation emissions;

Also noting that the CAAF/09 established an ICAO Global Framework for Aviation Alternative Fuels (GFAAF);

Noting the progress achieved in proving the technological feasibility of drop-in sustainable alternative fuels for aviation and that such fuels will require the introduction of appropriate policies and incentives to create a long-term market perspective;

Acknowledging the need for such fuels to be developed and deployed in an economically feasible, socially and environmentally acceptable manner and the need for increased harmonization of the approaches to sustainability;

Noting that, consistent with Assembly Resolution A37-19, a substantial strategy for capacity building was undertaken by the Organization to assist the preparation and submission of States' action plans, including the holding of hands-on training workshops and the development of guidance material, an interactive web-interface and the ICAO Fuel Savings Estimation Tool (IFSET);

Welcoming that, as of 30 June 2013, 61 member States that represent 78.89 per cent of global international air traffic voluntarily prepared and submitted their action plans to ICAO;

Noting that the ICAO "Assistance for Action – Aviation and Climate Change" Seminar in October 2012 highlighted the active involvement of member States and international organizations in the activities related to States' action plans, explored possible sources of financial support for environmental action and provided an opportunity to share information and build partnerships in order to facilitate assistance identified by States for the preparation and implementation of their action plans;

Recognizing the different circumstances among States in their capacity to respond to the challenges associated with climate change and the need to provide necessary support, in particular to developing countries and States having particular needs;

Affirming that specific measures to assist developing States as well as to facilitate access to financial support, technology transfer and capacity building should be initiated as soon as possible;

Whereas the Kyoto Protocol provides for different flexible instruments (such as the Clean Development Mechanism — CDM) which would benefit projects involving developing States;

Affirming that addressing GHG emissions from international aviation requires the active engagement and cooperation of States and the industry, and *noting* the collective commitments announced by Airports Council International (ACI), Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC) and International Coordinating Council of Aerospace Industries Associations (ICCAIA) on behalf of the international air transport industry, to continuously improve CO_2 efficiency by an average of 1.5 per cent per annum from 2009 until 2020, to achieve carbon neutral growth from 2020 and to reduce its carbon emissions by 50 per cent by 2050 compared to 2005 levels;

Recognizing the need to monitor and report the potential impacts of climate change on international aviation operations and related infrastructure; and

Recognizing the progress made by ICAO in its implementation of the Climate Neutral UN initiative and the significant support provided by ICAO to the initiative, in particular through the development of a common methodology for calculating GHG emissions from air travel;

The Assembly:

1. *Resolves* that this Resolution, together with Resolution A38-17: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality, supersede Resolutions A37-18 and A37-19 and constitute the consolidated statement of continuing ICAO policies and practices related to environmental protection;

2. *Requests* the Council to:

a) ensure that ICAO exercise continuous leadership on environmental issues relating to international civil aviation, including GHG emissions;

b) continue to study policy options to limit or reduce the environmental impact of aircraft engine emissions and to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties of the UNFCCC, encompassing technical solutions and market-based measures, and taking into account potential implications of such measures for developing as well as developed countries; and

c) continue to cooperate with organizations involved in policy-making in this field, notably with the Conference of the Parties to the UNFCCC;

3. *Reiterates* that:

d) ICAO should continue to take initiatives to promote information on scientific understanding of aviation's impact and action undertaken to address aviation emissions and continue to provide the forum to facilitate discussions on solutions to address aviation emissions; and

e) emphasis should be on those policy options that will reduce aircraft engine emissions without negatively impacting the growth of air transport especially in developing economies;

4. *Reaffirms* that this Resolution does not set a precedent for or prejudge the outcome of negotiations under the UNFCCC and its Kyoto Protocol nor represent the position of the Parties to the UNFCCC and its Kyoto Protocol;

5. *Resolves* that States and relevant organizations will work through ICAO to achieve a global annual average fuel efficiency improvement of 2 per cent until 2020 and an aspirational global fuel efficiency improvement rate of 2 per cent per annum from 2021 to 2050, calculated on the basis of volume of fuel used per revenue tonne kilometre performed;

6. *Agrees* that the goals mentioned in paragraph 5 above would not attribute specific obligations to individual States, and the different circumstances, respective capabilities and contribution of developing and developed States to the concentration of aviation GHG emissions in the atmosphere will determine how each State may voluntarily contribute to achieving the global aspirational goals;

7. *Also resolves* that, without any attribution of specific obligations to individual States, ICAO and its member States with relevant organizations will work together to strive to achieve a collective medium term global aspirational goal of keeping the global net carbon emissions from international aviation from 2020 at the same level, taking into account: the special circumstances and respective capabilities of States, in particular developing countries; the maturity of aviation markets; the sustainable growth of the international aviation industry; and that emissions may increase due to the expected growth in international air traffic until lower emitting technologies and fuels and other mitigating measures are developed and deployed;

8. *Recognizes* the many actions that ICAO member States have taken and intend to take in support of the achievement of the collective aspirational goals, including air traffic management modernization, acceleration of the use of fuel-efficient aircraft technologies, and the development and deployment of sustainable alternative fuels, and *encourages* further such efforts;

9. *Agrees* to review, at its 39th Session, the goal mentioned in paragraph 7 above in light of progress towards the goal, studies regarding the feasibility of achieving the goal, and relevant information from States;

10. *Requests* the Council to continue to explore the feasibility of a long term global aspirational goal for international aviation, through conducting detailed studies assessing the attainability and impacts of any goals proposed, including the impact on growth as well as costs in all countries, especially developing countries, for the progress of the work to be presented to the 39th Session of the ICAO Assembly. Assessment of long term goals should include information from member States on their experiences working towards the medium term goal.

11. *Further encourages* States to submit their voluntary action plans outlining their respective policies and actions, and annual reporting on international aviation CO_2 emissions to ICAO;

12. *Invites* those States that choose to prepare or update their action plans to submit them to ICAO as soon as possible preferably by the end of June 2015 and once every three years thereafter, in order that ICAO can continue to compile the information in relation to achieving the global aspirational goals, and the action plans should include information on the basket of measures considered by States, reflecting their respective national capacities and circumstances, information on the expected environmental benefits from the implementation of the measures chosen from the basket, and information on any specific assistance needs;

13. *Encourages* States that already submitted their action plans to share information contained in their action plans and build partnerships with other member States in order to support those States that have not prepared their action plans;

14. *Encourages* States to make their action plans available to the public, taking into account the commercial sensitivity of information contained in States' action plans;

15. *Requests* the Council to facilitate the dissemination of economic and technical studies and best practices related to aspirational goals and to continue to provide guidance and other technical assistance for the preparation and update of States' action plans prior to the end of June 2015, in order for States to conduct their necessary studies and to voluntarily submit their action plans to ICAO;

16. *Resolves* that States, when designing new and implementing existing MBMs for international aviation should:

a) engage in constructive bilateral and/or multilateral consultations and negotiations with other States to reach an agreement, and

b) grant exemptions for application of MBMs on routes to and from developing States whose share of international civil aviation activities is below the threshold of 1% of total revenue ton kilometres of international civil aviation activities, until the global scheme is implemented;

17. *Requests* the Council to review the *de minimis*, including the *de minimis* threshold of MBMs mentioned in paragraph 16 b) above, taking into account the specific circumstances of States and potential impacts on the international aviation industry and markets, and with regard to the guiding principles listed in the Annex, to be presented for consideration by the 39th Session of the Assembly in 2016;

18. *Decides* to develop a global MBM scheme for international aviation, taking into account the work called for in paragraph 19;

19. *Requests* the Council, with the support of member States, to:

a) finalize the work on the technical aspects, environmental and economic impacts and modalities of the possible options for a global MBM scheme, including on its feasibility and practicability, taking into account the need for development of international aviation, the proposal of the aviation industry and other international developments, as appropriate, and without prejudice to the negotiations under the UNFCCC;

b) organize seminars, workshops on a global scheme for international aviation participated by officials and experts of member States as well as relevant organizations;

c) identify the major issues and problems, including for member States, and make a recommendation on a global MBM scheme that appropriately addresses them and key design elements, including a means to take into account special circumstances and respective capabilities as provided for in paragraphs 20 to 24 below, and the mechanisms for the implementation of the scheme from 2020 as part of a basket of measures which also include technologies, operational improvements and sustainable alternative fuels to achieve ICAO's global aspirational goals; and

d) report the results of the work in sub-paragraphs a), b) and c) above, for decision by the 39th Session of the Assembly;

20. *Resolves* that an MBM should take into account the special circumstances and respective capabilities of States, in particular developing States, while minimizing market distortion;

21. *Also resolves* that special circumstances and respective capabilities of developing States could be accommodated through *de minimis* exemptions from, or phased implementation for, the application of an MBM to particular routes or markets with low levels of international aviation activity, particularly those serving developing States;

22. *Also resolves* that, the administrative burden associated with the implementation of an MBM to States or aircraft operators with very low levels of international aviation activity should not exceed the benefits from their participation in the MBM, and that exemptions from the application of the MBM to such States or aircraft operators should be considered, while maintaining the environmental integrity of the MBM;

23. *Also resolves* that adjustments to MBM requirements for aircraft operators could be on the basis of fast growth, early action to improve fuel efficiency, and provisions for new entrants;

24. *Further resolves* that, to the extent that the implementation of an MBM generates revenues, it should be used in consistency with guiding principle n) in the Annex;

25. *Recognizes* that in the short term voluntary carbon offsetting schemes constitute a practical way to offset CO_2 emissions, and *invites* States to encourage their operators wishing to take early actions to use carbon offsetting, particularly through the use of credits generated from internationally recognized schemes such as the CDM;

26. *Requests* the Council to collect information on the volume of carbon offsets purchased in relation to air transport, including through States' action plans submitted to ICAO, and to continue to develop and disseminate best practices and tools, such as the ICAO Carbon Emissions Calculator, that will help harmonize the implementation of carbon offset programmes;

27. *Requests* the Council to maintain and enhance appropriate standard, methodologies and a mechanism to measure/estimate, monitor and verify global GHG emissions from international aviation, and States support the work of ICAO on measuring progress through the reporting of annual data on traffic, fuel consumption and CO_2 emissions;

28. *Requests* the Council to request States to continue to support the efforts of ICAO on enhancing the reliability of measuring/estimating global GHG emissions from international aviation;

29. *Requests* the Council to regularly report CO_2 emissions from international aviation to the UNFCCC, as part of its contribution to assessing progress made in the implementation actions in the sector based on information approved by its member States;

30. While recognizing that no effort should be spared to obtain means to support the reduction and stabilization of CO_2 emissions from all sources, *urges* that ICAO and its member States express a clear concern, through the UNFCCC process, on the use of international aviation as a potential source for the mobilization of revenue for climate finance to the other sectors, in order to ensure that international aviation would not be targeted as a source of such revenue in a disproportionate manner;

31. *Requests* the Council to:

a) continue to play a pivotal role in providing assistance to its member States through the dissemination of the latest information on best practices and the provision of guidance and other technical assistance to enhance capacity building and technology transfer, including through the ICAO Technical Cooperation Programme;

b) consolidate and build on the partnership with other international organizations to meet the assistance needs of ICAO's member States, including through their action plans, which will bring about reductions in international aviation emissions;

c) initiate work immediately and as a priority in order to develop a process and mechanisms to facilitate the provision of technical and financial assistance, as well as facilitate access to existing and new financial resources, technology transfer and capacity building, to developing countries and report on results achieved as well as further recommendations, preliminarily by the end of 2015 and at the 39th Session of the Assembly; and

d) continue to initiate specific measures to assist developing States as well as to facilitate access to financial resources, technology transfer and capacity building;

32. *Requests* States to:

a) promote scientific research aimed at continuing to address the uncertainties identified in the IPCC special report on Aviation and the Global Atmosphere and in the Fourth Assessment report;

b) ensure that future international assessments of climate change undertaken by IPCC and other relevant United Nations bodies include updated information, if any, on aircraft-

induced effects on the atmosphere;

c) consider policies to encourage the introduction of more fuel efficient aircraft in the market;

d) accelerate investments on research and development to bring to market even more efficient technology by 2020;

e) accelerate the development and implementation of fuel efficient routings and procedures to reduce aviation emissions;

f) accelerate efforts to achieve environmental benefits through the application of technologies that improve the efficiency of air navigation and work with ICAO to bring these benefits to all regions and States, taking into account the Aviation System Block Upgrades (ASBUs) strategy;

g) reduce legal, security, economic and other institutional barriers to enable implementation of the new ATM operating concepts for the environmentally efficient use of airspace;

h) set a coordinated approach in their national administrations in order to develop policy actions to accelerate the appropriate development, deployment and use of sustainable alternative fuels for aviation, in accordance with their national circumstances;

i) consider measures to support research and development as well as processing technology and feedstock production in order to decrease costs and support scale-up of sustainable production pathways up to commercial scale, taking into account the sustainable development of States;

j) recognize existing approaches to assess the sustainability of all alternative fuels in general, including those for use in aviation which should:

1) achieve net GHG emissions reduction on a life cycle basis;

2) respect the areas of high importance for biodiversity, conservation and benefits for people from ecosystems, in accordance with international and national regulations;

3) contribute to local social and economic development, and competition with food and water should be avoided;

k) adopt measures to ensure the sustainability of alternative fuels for aviation, building on existing approaches or combination of approaches, and monitor, at a national level, the sustainability of the production of alternative fuels for aviation;

l) work together through ICAO and other relevant international bodies, to exchange information and best practices, including on the sustainability of alternative fuels for aviation;

33. *Requests* the Council to:

a) continue to develop and keep up-to-date the guidance for member States on the application of policies and measures aimed at reducing or limiting the environmental impact of emissions from international aviation, and conduct further studies with respect to mitigating the impact of international aviation on climate change;

b) encourage States to cooperate in the development of predictive analytical models for the assessment of aviation impacts;

c) continue evaluating the costs and benefits of the various measures, including existing measures, with the goal of addressing aircraft engine emissions in the most cost-effective manner, taking into account the interests of all parties concerned, including potential impacts on developing world;

d) provide the necessary guidance and direction to ICAO's Regional Offices to assist member States with studies, evaluations and development of procedures, in collaboration with other States in the region, to limit or reduce GHG emissions on a global basis and work together collaboratively to optimize the environmental benefits that can be achieved through their various programmes;

e) develop a global CO_2 Standard for aircraft aiming to finalize analyses by late 2015 and adoption by the Council in 2016;

f) further elaborate on relevant fuel efficiency metrics, including for international business aviation, and develop and update medium and long term technological and operational goals for aircraft fuel burn;

g) maintain and update guidance on ATM improvements and other operational measures to reduce international aviation emissions;

h) implement an emphasis on increasing fuel efficiency in all aspects of the ICAO's Global Air Navigation Plan, and encourage States and stakeholders to develop air traffic management that optimize environmental benefits and to promote and share best practices applied at airports in reducing the adverse effects of GHG emissions of civil aviation;

i) continue to develop and update the necessary tools and guidance to assess the benefits associated with ATM improvements, and assess the environmental benefits associated with the implementation of the Aviation System Block Upgrades (ASBUs) strategy;

j) encourage member States and invite industry, financial institutions and other international organizations to actively participate in exchange of information and best practices and in further work under ICAO on sustainable alternative fuels for aviation;

k) continue to maintain the ICAO Global Framework for Aviation Alternative Fuels (GFAAF);

l) collect information on progress of alternative fuels in aviation, including through States' action plans, to give a global view of the future use of alternative jet fuels and to account for changes in life cycle GHG emissions in order to assess progress toward achieving global aspirational goals;

m) work with financial institutions to facilitate access to financing infrastructure development projects dedicated to sustainable aviation alternative fuels and incentives to overcome initial market hurdles;

n) monitor and disseminate relevant information on the potential impacts of climate change on international aviation operations and related infrastructure, in cooperation with other relevant international organizations and the industry; and

o) continue to cooperate with the Climate Neutral UN initiative, remain at the forefront of developing methods and tools for quantifying aviation's GHG emissions with respect to the initiative, and further develop and implement the strategy for reducing GHG emissions and enhancing in-house sustainability management practices of the Organization.

Annex

The guiding principles for the design and implementation of market-based measures (MBMs) for international aviation:

a) MBMs should support sustainable development of the international aviation sector;

b) MBMs should support the mitigation of GHG emissions from international aviation;

c) MBMs should contribute towards achieving global aspirational goals;

d) MBMs should be transparent and administratively simple;

e) MBMs should be cost-effective;

f) MBMs should not be duplicative and international aviation CO_2 emissions should be accounted for only once;

g) MBMs should minimize carbon leakage and market distortions;

h) MBMs should ensure the fair treatment of the international aviation sector in relation to other sectors;

i) MBMs should recognize past and future achievements and investments in aviation fuel efficiency and in other measures to reduce aviation emissions;

j) MBMs should not impose inappropriate economic burden on international aviation;

k) MBMs should facilitate appropriate access to all carbon markets;

l) MBMs should be assessed in relation to various measures on the basis of performance measured in terms of CO_2 emissions reductions or avoidance, where appropriate;

m) MBMs should include *de minimis* provisions;

n) where revenues are generated from MBMs, it is strongly recommended that they should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions, including mitigation and adaptation, as well as assistance to and support for developing States;

o) where emissions reductions are achieved through MBMs, they should be identified in States' emissions reporting; and

p) MBMs should take into account the principle of common but differentiated responsibilities and respective capabilities, the special circumstances and respective capabilities, and the principle of non-discrimination and equal and fair opportunities.

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RESERVATIONS TO RESOLUTION A38-18

The following reservations were recorded by the States indicated below[2] in respect of specific provisions of Resolution A38-18 and are available on ICAO's website for the 38th Session of the Assembly:

Preambular paragraph 10	Australia
Paragraph 6	Australia
Paragraph 7	Argentina, Australia, Bahrain, Brazil, China, Cuba, India, Lithuania (on behalf of the 28 Member States of the European Union (EU[3]) and 14 other Member States of the European Civil Aviation Conference (ECAC[4])), the Russian Federation, Saudi Arabia and Venezuela (Bolivarian Republic of)
Paragraph 16	Lithuania (on behalf of the 28 Member States of the EU and 14 other Member States of ECAC) and Singapore
Paragraph 16 b)	Afghanistan, Australia, Canada, Japan, New Zealand, Qatar, the United Arab Emirates and the United States
Paragraph 20	Australia
Paragraph 21	Australia
Annex Guiding principle p)	Australia, Canada, Japan, Lithuania (on behalf of the 28 Member States of the EU and 14 other Member States of ECAC), New Zealand, the Republic of Korea and the United States

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[2] During the Sixth Plenary Meeting on 4 October 2013, the Islamic Republic of Iran made a reservation to paragraph 16 a) and b) but withdrew it by an e-mail dated 4 October 2013 to the Secretary General.

[3] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom

[4] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, the Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, and The former Yugoslav Republic of Macedonia

Paper no. 2: International Maritime Organization

Note by the International Maritime Organization to the fortieth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 40)
Bonn, Germany, 4 to 15 June 2014

Agenda item 11(c)
Emissions from fuel used for international aviation and maritime transport

UPDATE ON IMO'S WORK TO ADDRESS EMISSIONS FROM FUEL USED FOR INTERNATIONAL SHIPPING

SUMMARY

IMO's Marine Environment Protection Committee has been considering as an integral part of its agenda, actions to address greenhouse gas (GHG) emission from ships engaged in international trade. It met for its 66th session from 31 March to 4 April 2014 (MEPC 66), at IMO Headquarters in London and had the participation from 105 Member States, 3 United Nations bodies, 7 intergovernmental organizations and 50 non-governmental organizations.

Following the entry into force on 1 January 2013 of the new chapter 4 of MARPOL Annex VI which includes requirements mandating the Energy Efficiency Design Index (EEDI) for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships, MEPC 66 considered further energy efficiency measures for ships.

MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on "Further technical and operational measures for enhancing energy efficiency of international shipping" to consider the development of a data collection system for ships, including identification of the core elements of such a system.

IMO is also focusing its efforts on technical co-operation and capacity building to ensure smooth and effective implementation and enforcement of the new regulations worldwide. In this regard, MEPC 66 discussed the implementation of resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*.

Introduction

1 International shipping plays a vital role in the facilitation of world trade as the most cost-effective and energy-efficient mode of mass transport, making a significant contribution to global prosperity in both developing and developed countries.

2 IMO was established by governments as a specialized agency under the United Nations to provide machinery for intergovernmental cooperation in the field of regulation of ships engaged in international trade. IMO is responsible for the global regulation of all facets pertaining to international shipping and has a key role in ensuring that lives at sea are not put at risk including security of shipping and that the environment is not polluted by ships' operations – as summed up in IMO's mission statement: **Safe, Secure and Efficient Shipping on Clean Oceans**.

3 This document provides an update to previous submissions by IMO to SBSTA including: FCCC/SBSTA/2013/MISC.20 and FCCC/SBSTA/2013/MISC.15.

Work on control of GHG emissions from international shipping

4 Measures to improve energy efficiency of international shipping were adopted by Parties to Annex VI of the Convention on the Prevention of Pollution from Ships (MARPOL) at MEPC 62 in July 2011 and entered into force on 1 January 2013. The *Regulations for energy efficiency of ships*, apply to internationally trading ships of 400 gross tonnage and above, and make mandatory:

.1 the Energy Efficiency Design Index (EEDI) for new ships; and

.2 the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

5 The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. So long as the required energy-efficiency level is attained, ship designers and builders are free to use the most cost-efficient solutions for the ship to comply with the regulations.

6 All ships of 400 gross tonnage and above engaged in international trade are required to implement and maintain a SEEMP which establishes a mechanism for operators to improve the energy efficiency of ships. This should be achieved by monitoring the energy efficiency performance of a ship's transportation work and at regular intervals considering new technologies and practices to improve energy efficiency.

7 With regard to mandatory energy efficiency regulations for ships, MEPC 66 took the following actions:

.1 adopted amendments to MARPOL Annex VI concerning the extension of the scope of application of the Energy Efficiency Design Index (EEDI) to LNG carriers, ro-ro cargo ships (vehicle carriers), ro-ro cargo ships, ro-ro passenger ships and cruise passenger ships with non-conventional propulsion;

.2 adopted the *2014 Guidelines on the method of calculation of the Attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.245(66)); and

.3 agreed to the establishment of an EEDI database in order to support the review of the implementation of the EEDI provisions as detailed in regulation 21.6 of MARPOL Annex VI.

Further technical and operational measures to enhance the energy efficiency of ships

8 MEPC 65, in May 2013, considered the importance of enhancing energy efficiency and reducing fuel consumption with subsequent reductions of CO_2 emissions and other pollutants emitted to air and considered the use of a phased approach to implementation, with the focus of its initial work being on data collection.

9 MEPC 66 discussed various submissions relating to proposals to establish a framework for the collection and reporting of data on the fuel consumption of ships and established a Working Group on "Further technical and operational measures for enhancing energy efficiency of international shipping" to consider the development of a data collection system for ships, including identification of the core elements of such a system.

10 In discussing the possible scope of a data collection system the Working Group, inter alia, noted the view that a specific gross tonnage threshold for all ship types would be most appropriate with the following additional views that the scope should:

.1 be in line with the scope of the EEDI regulations, i.e. include all types of ships of 400 gross tonnage and above, with some delegations expressing the view that the administrative burden was not considered much different for ships of all sizes; and

.2 include ships of 5,000 gross tonnage and above as this is expected to encompass approximately 90% of the total energy consumption by international shipping but not present a disproportionate administrative burden on smaller ships.

11 The Working Group considered that a data collection system could include data elements as follows:

.1 identity of the ship (name, IMO number and flag State Administration);

.2 the shipowner and operator (name and address and principal place of business);

.3 technical characteristics of the ship including, for example, DWT, engine power, reference/design speed, EEDI, etc.;

.4 total annual fuel consumption per fuel type; and

.5 total annual transport work (tonne-miles) or transport work proxy, (e.g. distance or service hours).

12 MEPC 66, noting that further work should be undertaken intersessionally, agreed to establish a Correspondence Group and instructed it to consider the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system. The correspondence group will report to MEPC 67 in October 2014.

Update of the GHG emissions estimate for international shipping

13 MEPC 65 approved the Terms of Reference and agreed to initiate a study for an updated GHG emissions' estimate for international shipping. The new study will focus on updating key figures in the current (second) IMO GHG Study (2009), which estimated that international shipping emitted 870 million tonnes, or about 2.7%, of the global man-made emissions of CO_2 in 2007.

14 The update of the study is considered necessary, in general, to provide a better foundation for future work by IMO to address GHG emissions from international shipping. Sea transport is fuel-efficient and without updated figures it will be difficult to provide a meaningful baseline to illustrate the steadily on-going improvement in fuel efficiency due to improved hull design, more effective diesel engines and propulsion systems and more effective utilization of individual ships

resulting from the introduction of mandatory technical and operational measures, including other operational measures employed by ships as a consequence of the economic downturn.

15 There are three main tasks to the study: Reccgnizing that CO_2 is the most significant GHG emitted by ships, the first task of the study is an update of a CO_2 emission inventory from international shipping. A second task will constitute emission inventories from international shipping of GHGs (other than CO_2) considered under the UNFCCC process (CH_4, N_2O, HFCs, PFCs, SF_6) and other relevant substances (NOx, NMVOC, CO, PM, SOx). The third task is the modelling of future emission scenarios for all six GHGs and other relevant substances. These estimates represent a business as usual case, which takes into account the effects of MARPOL Annex VI requirements, as amended, e.g. inclusion of energy efficiency regulations and changes to the provisions for sulphur content of fuel oil.

16 MEPC 66 noted progress had been made on the update study and that the report of the third IMO GHG study 2014 is expected to be completed at MEPC 67 in October 2014.

Technical co-operation and transfer of technology

17 Regulation 23 of chapter 4 of MARPOL Annex VI on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships* requires Administrations, in co-operation with the Organization and other international bodies, to promote and provide, as appropriate, support directly or through IMO to Member States, especially developing States that request technical assistance. It also requires the Administration of a Party to MARPOL Annex VI to co-operate actively with other Parties, subject to its national laws, regulations and policies, to promote the development and transfer of technology and exchange of information to States which request technical assistance, particularly developing States.

18 Linked to the implementation of energy efficiency measures, MEPC 65 adopted an MEPC resolution MEPC.229(65) on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*, which, among other things, requests the IMO, through its various programmes, to provide technical assistance to Member States to enable cooperation in the transfer of energy efficient technologies to developing countries in particular; and further assist in the sourcing of funding for capacity building and support to States, in particular developing States, which have requested technology transfer.

19 MEPC 66 discussed the implementation of resolution MEPC.229(65) and established, in accordance to the resolution, the Ad Hoc Expert Working Group on Facilitation of Transfer of Technology for Ships (AHEWG-TT). The AHEWG-TT agreed on the methodology for conducting its work, as well as a work plan which was endorsed by the Committee.

20 This work plan envisages: assessing the potential implications and impacts of the implementation of the energy efficiency regulations in chapter 4 of MARPOL Annex VI, in particular, on developing States, as a means to identify their technology transfer and financial needs; identifying and creating an inventory of energy efficiency technologies for ships; identifying barriers to transfer of technology, in particular to developing States, including associated costs, and possible sources of funding; and making recommendations, including the development of a model agreement enabling the transfer of financial and technological resources and capacity building between Parties, for the implementation of the energy efficiency regulations.

21 MEPC 66 agreed that a second meeting of the AHEWG-TT be held prior to MEPC 67 (scheduled to take place from 9 to 10 October 2014 at IMO Headquarters) in order for the Group to provide a progress report to the Committee at that session. The meeting will discuss the specific tasks under the AHEWG-TT work plan (document MEPC 66/WP.8).

Technical cooperation activities

22 MEPC 66 noted the information provided by the Secretariat (document MEPC 66/INF.24) informing the Committee of the technical cooperation activities that the Secretariat has undertaken, as well as planned future activities in relation to the implementation of MARPOL Annex VI, in particular chapter 4 thereof.

23 Under the 2014 to 2015 Integrated Technical Co-operation Programme (ITCP) of IMO, several national and regional capacity building activities are currently planned, in order to sustain the level of technical cooperation interventions in various regions for the effective implementation and enforcement of energy efficiency measures for ships. In this context, four regional workshops to raise awareness with regard to improving energy efficiency and the control of GHG emissions from ships are scheduled to take place in the biennium.

GEF-UNDP-IMO Project: Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency

24 MEPC 66 noted that IMO, through the UNDP, submitted a Project Identification Form (PIF) to the Global Environment Facility (GEF) for funding a medium-size project entitled "Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency" to assist the developing countries in the implementation of new energy efficiency measures adopted by IMO.

25 The PIF has received the GEF endorsement for funding of $2 million. This two-year global project builds on IMO's experience in delivering the project on capacity building in East Asia to address GHG emissions.

26 The proposed project, while focusing on legal, policy and institutional reforms (LPIR) and related tools development, will also help to enhance the technical knowledge and capacity for implementation of the new regulatory measures related to ships energy efficiency. Moreover, the project will facilitate creation and exchange of knowledge in developing countries on energy efficient shipping practices and opportunities, and provide a platform for sharing innovation and R&D, catalyse demonstrations of selected feasible energy efficiency measures and technologies by the private sector.

27 With the global tools developed and partnerships created by the project and the funding support by the project, pilot beneficiary countries, selected based on their level of interest and commitment to undertake a fast-track approach, are expected to initiate their legal, policy and institutional reforms and necessary capacity-building efforts – leading to creation of successful models and centres of excellences that can be replicated in other countries around the world.

28 The principal components of the project include: 1) legal, policy and institutional reforms for GHG reductions through improved energy efficiency within maritime transport sector in developing countries; 2) maritime sector energy efficiency related capacity building, awareness raising,

knowledge creation and dissemination and; 3) public-private partnerships to catalyse maritime sector energy efficiency innovation and R&D.

29 The IMO Secretariat is currently preparing a detailed project implementation document (ProDoc) for which the GEF has already approved $100,000 as Project Preparation Grant (PPG). The PPG will allow IMO Secretariat to have detailed discussions with the pilot beneficiary countries as well as with other potential partners, including the private sector, before finalizing the ProDoc. Once the ProDoc is completed and approved by the GEF CEO, the implementation of the project activities can begin approximately by mid-2014.

Summary

30 Although international maritime transport is the most energy efficient mode of mass transport and only a modest contributor to worldwide CO_2 emissions (estimated as 2.7% in 2007), a global approach for further improvements in energy efficiency and emission reduction is considered necessary as sea transport is predicted to grow significantly in line with expected future growth in world trade.

31 IMO has developed and adopted a framework of technical and operational measures that now serves as mandatory performance standards for increased energy efficiency in international shipping. The framework builds on IMO's enforcement and control provisions (flag and port State controls) and includes also ship management aspects such as monitoring, verification and reporting, as well as guidelines for effective implementation.

32 IMO, as the global regulator of international shipping, will continue its endeavours to reduce environmental impacts from international maritime transport, a vital industry to world trade and sustainable development, and keep relevant bodies of the UNFCCC informed of its progress.